

Asymptotes of Rational Functions

Name: _____

Identify all vertical asymptotes for each function.

1. $f(x) = \frac{5x}{x-1}$

2. $f(x) = \frac{3x^2}{x^2-1}$

3. $f(x) = \frac{3x^2+x-5}{x^2+1}$

4. $f(x) = 1 - \frac{3}{x-3}$

5. $f(x) = \frac{x^2-5x+4}{x^2-4}$

6. $f(x) = \frac{x^3}{2x^2-8}$

Determine whether the graph will have a horizontal or a slant asymptote, then find it.

7. $f(x) = \frac{3x^2+1}{x^2+x+9}$

8. $f(x) = \frac{4}{(x-2)^3}$

9. $f(x) = 2 + \frac{5}{x^2+2}$

10. $f(x) = \frac{x^2+1}{x}$

11. $f(x) = \frac{2x^2-5x+5}{x-2}$

12. $f(x) = \frac{2x^3-x^2-2x+1}{x^2+3x+2}$